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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,452	01/28/2005	Atsushi Kikuchi	450100-05086	1151

7590 03/25/2008
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EXAMINER

RIZK, SAMIR WADIE

ART UNIT	PAPER NUMBER
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2112

MAIL DATE	DELIVERY MODE
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03/25/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/523,452	KIKUCHI ET AL.	
	Examiner	Art Unit	
	SAM RIZK	2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 January 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/28/2005, 11/20/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTIONS

- Claims 1-32 have been submitted for examination
- Claims 1-32 have been rejected

Drawings

1. Figures 1-11 should be designated by a legend such as --Prior Art-- or -- Background Art -- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

3. Claims 1-32 are objected to because of the following informalities:

Throughout the claim(s) language, the Applicant should refer to binary value of one by (one "1").

Appropriate correction is required.

Claim Rejections - 35 USC § 101

4. Claims 13, 16, 21, 24, 29 and 32 are rejected under 35 U.S.C. 101 because the claim invention is directed to non-statutory subject matter.

For Example, each limitation in the computer program in claim 13 is an algorithm that can be carried by computer software (program) element and is not tangibly embodied.

Note Page 74; line (22) wherein the Applicant teaches software installed via a predetermined “network” as a compute-readable medium. Networks are non-statutory. Non-tangible embodied computer programs are non-statutory.

Claim Rejections - 35 USC § 112

5. Claim 2 recites the limitation "the ring" in line 2. There is insufficient antecedent basis for this limitation in the claim.
6. Claim 7 recites the limitation "the ring" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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7. Claims 1-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Matsumoto US publication no. 2004/0199859 (Hereinafter Matsumoto).

8. In regard to claim 1, Matsumoto teaches:

- A method for decoding a linear code on ring R, the method being characterized by including:
- a low-density processing step for reducing the density of elements whose values are determined to be one, for a check matrix of the linear code; and

(Note: FIG. 1, reference characters (S1), (S6) & (S7) in Matsumoto)

- a decoding step for decoding the linear code through a sum product algorithm by using the check matrix whose density is reduced through the low-density processing step.

(Note: Section [0008], lines (5-6) in Matsumoto)

9. In regard to claim 2, Matsumoto teaches:

- The decoding method according to Claim 1, characterized in that the ring is a finite field including powers of prime numbers, as elements.

(Note: Section [0012], lines (4-6) in Matsumoto)

10. In regard to claim 3, Matsumoto teaches:

- The decoding method according to Claim 2, characterized in that the linear code includes a BCH code, or a Reed-Solomon code on the finite field.

(Note: Section [0013] in Matsumoto)

11. In regard to claim 4, Matsumoto teaches:

- The decoding method according to Claim 1, characterized in that the low-density processing step includes:
- a linear-combination calculation step for calculating linear combination of rows of the check matrix; and

(Note: Section [0065] in Matsumoto)

- a check-matrix generation step for extracting a subset of lower-weight vectors for forming a complementary space from among a vector set obtained by the linear combination calculated through the linear-combination calculation step and generating a new check matrix including all the vectors of the vector subset, as row elements.

(Note: Sections [0073] & [0084] in Matsumoto)

12. In regard to claim 5, Matsumoto teaches:

- The decoding method according to Claim 4, characterized in that the low-density processing step further includes:
- an expansion step for expanding the check matrix on the finite field on a predetermined subfield of the finite field in a predetermined degree, wherein the linear-combination calculation step is provided for calculating linear combination of the rows of the check matrix expanded through the expansion step.

(Note: Sections [0073] & [0084] in Matsumoto)

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13. Claims 6, 13-17, 20 – 25 and 28-32 are rejected for the same reasons as per claim 1.
 14. Claim 7 is rejected for the same reasons as per claim 2.
 15. Claims 8, 18 and 26 are rejected for the same reasons as per claim 3.
 16. Claim 9 is rejected for the same reasons as per claim 4.
 17. Claims 10, 19 and 27 are rejected for the same reasons as per claim 5.
 18. In regard to claim 11, Matsumoto teaches:
 - The decoder according to Claim 6, characterized by further including soft-decision decoding means for performing soft-decision decoding for a linear code subjected to convolutional encoding, wherein the low-density processing means reduces the density of the elements whose values are determined to be one, for the check matrix of the linear code subjected to the soft-decision decoding by the soft-decision decoding means.
- (Note: Sections [0134]-[0140] in Matsumoto)
19. Claim 12 is rejected for the same reason as per claim 1.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Rizk whose telephone number is (571) 272-8191. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques Louis-Jacques can be reached on (571) 272-6962. The fax

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phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronics Business Center (EBC) at 866-217-9197 (toll-free)

/Sam Rizk/

Examiner, Art Unit 2112

/JACQUES H LOUIS-JACQUES/

Supervisory Patent Examiner, Art Unit 2112